



AQUARIUM WINTER 2007/08

NEWS

NEWS MAGAZINE OF THE NORTH CAROLINA AQUARIUMS

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3125 Poplarwood Ct., Suite 160

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919-877-5500

1-800-832-FISH

Managing Editor: Sherry White

Contributors: Mark Joyner, Pat Murphy, Joanne Harcke, Melanie Doyle, Becky Davis, Wayne Justice, Richard Triebe, Cyndar Meissner, C.P. "Buster" Nunemaker III, Bob Roush, Julie Powers, Jay Barnes, Kathy Mitchell, Laurie Streble, Michele Lamping, Christian Guerrieri, David Sybert, Pat McNeese, Emmett Westbrook, Stef Misner, Heather Johnson, Scott Taylor, Dia Hitt, Mark Hooper, William Davis, Mike Remige, Stuart May, Catherine McClellan, Drs. Scott and Karen Eckert, Peggy Sloan, Beth Wilcox

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Photo by Scott Taylor

New acrylic technologies and state-of-the-art life-support systems make it possible to design large-scale ocean ecosystems.

Soundings

By Mark Joyner, Executive Vice President
 NC Aquarium Society

Aquarium visitors who enjoy the rare glimpse into the underwater world may not be aware that the NC Aquariums go to great lengths to achieve what would have been impossible only a few years ago. Thanks to state-of-the-art life-support systems and meticulous husbandry practices, visitors have become accustomed to viewing healthy animals displayed in native habitats. Today, an increasing number of Aquarium specimens are captive-bred, rather than collected from the wild.

Innovations in large public aquariums have led to what some in the industry now describe as "fourth generation" aquariums. The first generation, which came on the scene in the mid-1800s, were groundbreaking in merely displaying live marine animals. The second generation came of age in the 1960s, as advances were made in life-support systems with water filtration and synthetic seawater. More recent technical breakthroughs in the acrylic industry led to the third generation of aquariums – mil-

lion-gallon tanks with enormous viewing windows and acrylic tunnels. With no practical limit to tank sizes, it was finally possible to portray large scale ecosystems featuring some of the oceans' largest inhabitants.

What distinguishes the so-called fourth generation aquariums is the desire to build upon all the above, and go a step further in attempting to raise public awareness. These days responsible aquariums are dedicated not only to providing excellent care for their animals, but a great educational experience for visitors. For the North Carolina Aquariums, that means an absolute commitment to making your visit both entertaining and informative. That's always been our core mission, even before the expansions, which now enable us to offer many more activities on a year-round basis.

What the future holds for the next generation aquariums is anyone's guess. Perhaps personalized interactive experiences and virtual tours of the unexplored deep regions of the world's oceans. The Age of Aquariums is far from over, and has, in fact, just begun. Thanks for joining us on our journey!

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Small but feisty blennies will set up shop in most any habitat, ranging from reefs and rocks to barnacles and bottles. Photo by Mark Hooper



On the Cover: Offshore, a small school of cubbyu swirl in front of the lens for Richard Triebe, a Wilmington resident and SCUBA diver.

Cover Inset: The Aquariums are attracting colorful visitors, such as this eastern tiger swallowtail. See story on page 4. Photo by Emmett Westbrook, Foto FX

Emmett Westbrook, Foto FX



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Photo by Emmett Westbrook, Foto FX



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Photo Courtesy of Beach Vitex Task Force

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Photo by Julie Powers

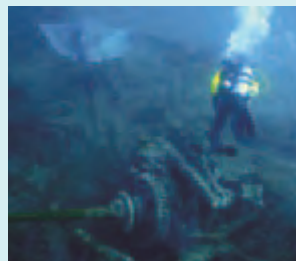


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Photo courtesy of Arcadia Press' Postcard History Series: Carolina Beach by Elaine Blackmon Henson





New Curator Onboard

By C.P. "Buster" Nunemaker III, Public Relations Coordinator

Dwayne Biggs is excited about the many "stories" the Aquarium has to tell, and even more excited that he'll have a hand in helping develop them.

Biggs recently accepted the exhibits curator position at the Aquarium on Roanoke Island. His experience outweighs his years, and his ability to coordinate and creatively implement husbandry and exhibits projects can be measured by past successes. Highlights of his work career include the Chicago Zoological Society, the Tennessee Aquarium and Dauphin Island Sea Lab.

Originally from Huntsville, Ala., Biggs has honed his knowledge of museums, zoos and aquariums over the past 14 years. He uses a hands-on approach to his work, and enjoys implementing new ideas and technologies. Open discussions with staff are motivational and get creative juices flowing.

Biggs has his eye on several new exhibit ideas for the Aquarium: Create additional photo opportunities for visitors; develop more outside exhibits; initiate a permanent jellyfish display.

"It's not always about being bigger," said Biggs. "The goal is to immerse visitors in an experience they will remember."



Photo by C.P. "Buster" Nunemaker, III

After giving the Aquarium's stuffed gator a makeover, Exhibits Curator Dwayne Biggs joined youngsters for a photo opportunity in the Freshwater Gallery.

'Octopus on the Eights'

Stef Misner, Educator

On the eighth day of each month, the Aquarium at Fort Fisher celebrates a fascinating eight-legged wonder – the octopus – in the theme-based series, "Octopus on the Eights." On these special days, all programs feature this marvelous cephalopod, or its cousins, squid and cuttlefish.

In the Aquarium auditorium, the octopus is the star of interactive live animal programs. It's also showcased in films throughout the day. In classrooms, visitors try their hand at crafts and activities that demonstrate cephalopod adaptations. An octopus-themed scavenger hunt rewards success with a nifty prize.

Visitors can observe octopus and cuttlefish being fed by Aquarium staff, and preschoolers encounter these amazing animals when they sign up for "Children's Discovery Time." Youngsters can even have their photo taken with an octopus-clad educator.

"Octopus on the Eights" is an entertaining way to get a closer look and learn more about these intelligent and fascinating animals – one of the ocean's most intriguing creatures.



Photo by William Lawson



By Julie Powers, Publicity Coordinator

Ring in the New Year Aquarium style!

Members' Night New Year's Eve at the Aquarium at Pine Knoll Shores begins with an elegant dinner, catered by Floyd's 1921 Restaurant, with the 306,000-gallon *Living Shipwreck* as the backdrop. Then the party moves for live music, dancing, revelry and a midnight champagne toast. Foto FX photographers will be available to take souvenir pictures.

Tickets for the dinner and dancing package are \$150 per couple; \$80 per individual. For the dance alone, tickets are \$15 per person. For details and information on hotel accommodations, call the Aquarium at 252-247-4003 or 1-866-294-3477.

Not a member? Not a problem! Join the Aquarium Family for only \$50 a year and enjoy special events such as this, along with unlimited free admission and many other benefits.



Photo by Bob Roush

A dramatic spiny lobster exhibit has turned out to be a real crowd-pleaser at the Aquarium at Fort Fisher.

Love Those Lobsters!

By Bob Roush, Public Relations Coordinator

Who knew a gang of spiny lobsters would be such a smash?

When five of these crawling crustaceans made their debut in the Exotic Aquatics Gallery at the Aquarium at Fort Fisher last spring, they were just a "placeholder" – stand-ins for sea snakes, who were moving to a new home. But crowds flocked to the lobsters, fascinated by their size – up to two feet – their bizarre appearance, and the energetic grace with which they moved about the exhibit.

"It was kind of a surprise, but we had a hit on our hands," said Aquarist Dave LaPlante. The lobsters fit into the Exotic Aquatics Gallery's theme of "Strange and Beautiful Life on Planet Ocean," which includes other crowd-pleasers such as lionfish, cuttlefish, Pacific reef creatures and, coming soon, poison dart frogs.

Caribbean spiny lobsters (*Panulirus argus*), found in Atlantic waters from North Carolina to Brazil, are only distantly related to clawed lobsters; the two come from different families. Strong, sharp spines – especially a large pair above the eyestalks – are the clawless spiny lobster's primary defense.

Spiny lobsters' tails are said to be just as tasty as those of "true" lobsters. Many restaurants serve spiny lobsters because they are more abundant and less expensive than their cousins from Maine.

Flights of Fancy

By Kathy Mitchell, Horticulturist

Thanks to new way stations, colorful visitors were spotted in increasing numbers at the Aquariums this summer. The way stations are designed to provide food and shelter for monarch butterflies, as they migrate long distances each spring and fall.

Monarchs (*Danaus plexippus*) are the only butterfly species known to complete an annual two-way migration, and the only insect to migrate extreme distances across international borders – from Canada to Mexico! Monarch caterpillars depend on milkweed for survival, but adults feed on nectar from a variety of flowers. Monarchs are finding these critical food resources in sharp decline, because of development, loss of agricultural land and use of herbicides.

With this in mind, horticulturists at the Aquariums decided to join in monarch conservation efforts by participating in the Monarch Waystation Program, sponsored by the Monarch Watch Organization.

In addition to colorful monarchs, the way stations attract many other winged visitors. Butterflies of all kinds feed on nectar provided by the diversity of native wildflowers and perennials in the way station gardens. Signs encourage Aquarium visitors to join the campaign to help monarchs by creating, conserving and protecting monarch habitats.



Photo by Emmett Westbrook, Foto FX

A migrating monarch stops to feed on a lantana blossom.

For information on creating a monarch way station, log onto monarchwatch.org. For information about monarch butterfly biology and conservation, visit fs.fed.us/monarchbutterfly.



Laurie Streble tests her new underwater ROV.

Aquarium Launches ROV

By Laurie Streble, Outreach Coordinator

The first time I launched my underwater, remotely-operated vehicle (ROV), a seventh-grader ran up and asked, "Hey lady, can I try that?" I knew immediately that the new outreach program, "ROVs and Ocean Exploration," would be a hit at the Aquarium at Pine Knoll Shores.

I built the small, fully-functional ROV in a workshop on ocean exploration, aimed at encouraging careers in science technology. Kids love the special battery-operated gadget, and the new ROV program features hands-on activities and cool ocean exploration facts targeted for grades 6-12.

Vast expanses of the world's oceans remain unexplored. New scientific techniques such as ROVs represent advancing technology that will allow us to discover new aquatic frontiers. The Aquarium's ROV outreach program may give some budding scientists their first chance at the controls!

Banding Is for the Birds



Photo by Melanie Doyle

Education Curator Peggy Sloan holds a young royal tern.

Aquarium staff Melanie Doyle, Joanne Harcke, Ruth Schneider and Peggy Sloan joined other volunteers for the boat ride up the Cape Fear River to remote dredge spoil islands, where thousands of birds nest. Wayward areas such as these are vital to royal and sandwich terns and brown pelicans.

Fledgling terns, yet unable to fly, gather instinctively into a group called a "crèche." The birds are corralled into large pens, where they can be easily handled, and the bands are attached. Released from the pen, they unite with their parents before returning to the crèche. Unlike terns, brown pelicans remain in the nest after hatching. Volunteers move from nest to nest to band each bird.

Bird banding enables researchers to gather data and study colony trends. Dr. Weske has banded birds on these same islands for several decades, creating an extensive data set. Each year, volunteer teams band thousands of terns and hundreds of pelicans.

This summer, the Aquarium at Fort Fisher assisted Audubon North Carolina and retired ornithologist Dr. John Weske in banding newly-hatched, colonial-nesting waterbirds. The individually numbered metal bands resemble tiny bracelets and are placed around the bird's leg.



Photo by Robert Roush

Media Technician Bob Griffin updates a hurricane's path on the "Hurricane Alley" tracking chart.

Hurricane Upgrade

By Bob Roush, Public Relations Coordinator

The *Hurricanes* exhibit at the Aquarium at Fort Fisher packs a bigger punch these days, thanks to the addition of a large, flat-panel video screen and an upgraded, dynamic tracking chart.

The new display runs a five-minute NASA program that tracks the 27 named storms of the record-breaking 2005 hurricane season. The presentation explains how ocean surface temperatures and other factors contributed to the formation and movement of so many storms in 2005, starting in June with Arlene, and ending in early winter with Zeta.

"We'll use the screen to show other programs, too," said Media Technician Bob Griffin, who handled the upgrades. "During storm season, for example, we can play reports from local TV meteorologists."

Griffin's transparent "Hurricane Alley" chart can be updated daily to show a storm's path and location. The color-coded tracks of such historic hurricanes as Hazel (1954), Fran (1996) and Katrina (2005) are included for reference.

Frightfully Fishy!



Photo by Georgia Minnich

Goblins and gremlins of all ages turned out for the Aquariums' annual Halloween "Trick-or-Treat Under the Sea." Area vendors joined in festivities again this year, complete with costumes and creatively decorated booths. The Aquariums host activities that combine freaky facts and spooky fun. Candy stations, special programs, storytelling and ghoulishly decorated galleries provide a frightfully good time.



Beach Vitex – Beware!

By Melanie Doyle, Horticulturist

In August, David Nash of the NC Cooperative Extension Service asked if I would step into his role as state coordinator for the Carolina Beach-Vitex Task Force. Created in 2003, the task force is made up of individuals and professionals concerned about the invasive and exotic plant, beach vitex.

Though attractive, this exotic species quickly outgrows and eliminates native species that hold dunes in place. Because of its woody root system, vitex is not as efficient in dune stabilization as native plants, and its bullying characteristic spells trouble for coastal dunes – the first line of defense against storms.

Vitex also spells trouble for sea turtles. The plant's fast-spreading, vine-like branches are known to overgrow sea turtle nests, resulting in the entrapment of emerging hatchlings. The plant could also threaten nesting areas for birds and eliminate critical nectar and larval plants for butterflies. Plant biologists at Clemson University have been researching the ecology and physiology of *Vitex rotundifolia*, learning how the species behaves and how best to control it.

The task force is working to locate infestations of this prolific and invasive plant, and educate homeowners and property managers in ways to eliminate it from beach communities. Having the plant



Photo courtesy Beach Vitex Task Force

Beach vitex sports pretty purple flowers in summer. Oval-shaped leaves are semi-waxy and have a distinctive eucalyptus-like scent when crushed. The woody-stemmed plant dies back in winter.

designated as a "noxious weed" on both the federal and state levels is also high on the task force's priority list.

For more information on this invasive species, or to report sightings, visit beachvitex.org, or call the Aquarium at Fort Fisher at 910-458-8257 ext 250.



Photo by Julie Powers.

Aquarium Internships

Get a head start in your field of study with a summer internship at the Aquariums. Limited positions are available to students majoring in biology, ecology, education, design and related fields. Internships are offered through two sources: directly through the Aquariums, and through the NC State Government Youth Advocacy and Involvement Office (NCYAIO).

Students may apply for both NCYAIO internships and Aquarium-sponsored internships. Those seeking academic credit for internships must make arrangements with their schools. Deadline for summer NCYAIO internships is usually in January, and applications require substantial support materials. Interested students should apply directly through NCYAIO and begin the process as soon as possible. For information on YAIO internships, log onto ncyai.com, or call 919-733-9296.

For information on Aquarium-sponsored internships, log onto ncaquariums.com. Select the Aquarium of your choice, then click on Volunteers and Jobs. For more information call toll free: Roanoke Island 1-866-332-3475; Pine Knoll Shores 1-866-294-3477; Fort Fisher 1-866-301-3476.

In preparation for presenting public programs, education intern Leo Mitchell gets comfortable with handling young alligators.



Photo by Mike Remige

Work on Jeanette's Pier is expected to begin by the end of the year. If all goes well, the new pier could open in spring 2010.

New Life for an Old Pier

Jennette's Pier in Nags Head has weathered many storms since opening in 1939. At times, it looked like the oldest fishing pier on the Outer Banks had finally reached its end. Just five years ago, it appeared that the historic pier would be done in – not by hurricanes but by encroaching development. At the last possible moment, the NC Aquarium Society was able to secure grant funding to purchase the pier and five acres of oceanfront property. The Society's plans were ambitious; to transform the pier into an innovative extension of the NC Aquariums.

Since then, the pier has been repaired, nearly destroyed by Hurricane Isabel, partially reopened, then closed again, as the nonprofit Aquarium Society struggled to come up with funds for a storm-resistant struc-

ture. Innovative design plans call for sturdy, concrete pilings that would extend the full 1,000-foot length of the pier. Decking and railings would be of wood. An attached two-story pier house, built to withstand powerful storms, would include educational exhibits, aquarium tanks, a classroom, tackle shop and public rental spaces. The price tag: \$12 million.

The Aquariums have now received state funding, which will make this exciting project possible! This is tremendous news, not just for the Aquariums but for the entire state, which in recent years has sadly witnessed the alarming loss of ocean piers up and down the coast. For Jennette's Pier at least, help has arrived, and hopefully it's a model that can be duplicated at other sites before it's too late.

Your Best Shot!

The 2007 NC Aquariums' Underwater Photo Competition is under way. Amateur and non-professional photographers are encouraged to enter their best shots in the annual contest. No entry fee is required. Deadline for this year's entries is Dec. 31, 2007. Winners will be announced on or before March 31, 2008. Now in its seventh year, the contest is sponsored by East Carolina Bank.

The Aquariums stage the contest to highlight the state's rich aquatic resources, and to recognize excellence in amateur photography. Employees of the

Aquariums and the Aquarium Society and their immediate families are not eligible, nor are photos taken by Aquarium volunteers while on duty.

Cash prizes are awarded in three categories: Underwater Open, Underwater Animal Close-ups and Aquatic Life in the NC Aquariums. Entries by divers must be taken in the waters off North Carolina, or within the state's freshwater systems. Winning photos are published here in *Aquarium News*.

For complete contest rules and entry application, or to view last year's winning entries, visit ncaquariums.com.



Photo by Richard Triebe

Making Tracks

By Pat McNeese, Conservation and Research Coordinator and Heather Johnson, Aquarist



Photo by Stuart May

Using its flippers, the recently released 68-pound loggerhead made its way into the sea. The turtle will be keeping in touch via satellite.

When the loggerhead sea turtle from the Aquarium at Pine Knoll Shores went traveling this fall, it was packing some baggage. The turtle carried a transmitter epoxied to its shell.

The four-year-old turtle, formerly the star of the Aquarium's 50,000-gallon *Queen Anne's Revenge* exhibit, was released from the beach in Pine Knoll Shores where it had been rescued as a hatchling in 2003.

The lightweight, streamlined transmitter, about five inches long, has little effect on the turtle's movement. The transmitter is expected to function about a year before falling off. The device sends a satellite signal whenever the turtle surfaces, indicating the animal's location. This tells the Aquarium and researchers more about the travels of sea turtles that have been returned to the ocean after spending their first years in an aquarium setting.

Long-term, satellite-tracking information is valuable in learning about the marine turtle population that nests on local beaches. Researchers use this same satellite tracking science to determine sea turtle migratory patterns and local feeding and nesting movements. The public can track the path of the newly-released Aquarium loggerhead, and dozens of other tagged sea turtles from around the world, at seaturtle.org.

Sea Turtle Science

Since early summer, the Aquarium on Roanoke Island has been working on a project with the NC Wildlife Resources Commission and the Network for Endangered Sea Turtles (NEST) to learn more about sea turtle strandings on the state's northern beaches.

An important part of the research is performing necropsies on sea turtle fatalities. During this procedure, organ systems are examined, sex is determined, stomach contents are collected and tissue and bone samples are preserved.

In recent years, few necropsies have been performed on sea turtles found from the Virginia border to Oregon Inlet. As of late summer this

year, some 18 necropsies had been completed, compared to a previous yearly average of four.

Educator David Sybert and Aquarist Christian Guerrerri of the Aquarium on Roanoke Island are primary researchers for the project. They assist Karen Clark and Michelle Baker of the NC Wildlife Resources Commission.

The project has allowed the Aquarium, local agencies and nonprofit organizations to collaborate and gain valuable information about endangered and threatened sea turtles. It has also provided opportunities to educate the public about the important and often unrecognized science behind the conservation management of these ancient marine animals.



Photo by C.P. "Buster" Nunemaker III

Wendy Cluse, sea turtle biologist with the NC Wildlife Resources Commission, leads a necropsy workshop. Orange-red marking on a turtle's shell indicates that the fatality has been recorded and data collected.

Tagging Turtles

By Michele Lamping, Aquarist

A trip to Trinidad was part of a "Sea Turtle Biology and Conservation" course offered last spring at Duke University Marine Laboratory in Beaufort, NC. I was fortunate to travel with twenty other students, and world-renowned sea turtle biologist Dr. Scott Eckert, to the small coastal village of Matura.

Trinidad, the southernmost Caribbean island, sits nine miles northeast of Venezuela. It hosts the second largest nesting population of endangered leatherback sea turtles in the world – averaging 6,000 egg-bearing females per year!

Matura village is made up of about 1,445 people who make their living on mining, fishing, hunting and, increasingly, tourism. Visitors can hike to Matura and Rio-Seco waterfalls and areas inhabited by howler monkeys and pawi birds. However, the heart of Matura's tourism industry centers on leatherback sea turtles, the largest and most elusive of marine turtles. Nesting females weigh 500-1,200 pounds. Males can top the scales at more than a ton.

In the 1970s and '80s, sea turtles in this area were often slaughtered at a rate of 30 percent per year for their meat, eggs and oil. In the 1990s, with support from the Wider Caribbean Sea Turtle Conservation Network (WIDECAST) and the government of Trinidad, the community-based conservation organization, Nature Seekers, was born, and the Matura nesting beach was protected by law. Today, many of the threats facing this ancient species here have been reversed and the population is believed to be rising.

Our group's job was to help Nature Seekers tag and document leatherbacks during the nesting season. Days consisted of morning lectures by Dr. Scott Eckert and the Nature Seekers staff, and afternoon hikes to one of many nearby attractions. Our nights were spent tagging nesting leatherbacks.



Photo by Beth Claiborne

A female returns to sea after nesting on Matura beach. These giant sea turtles lay eggs on sandy beaches around the world, including North Carolina, which recorded 10 leatherback nests in 2007.

Our first night, we were trained on tagging procedures, which involved waiting for the female to choose a nest site, dig her nest and begin laying eggs. During egg laying, we took measurements, assessed any injuries and recorded data. If identifying flipper or "PIT" tags were absent, we attached new ones and moved on to the next turtle.

The following nights we split into groups and had tagging marathons! These went on until the wee hours of the morning and we were able to tag as many as a hundred turtles per night on Matura Beach alone.

Today, the successful efforts of Nature Seekers have been recognized with national and international conservation awards, and the project serves as a model for others. Dedication and a willingness to teach others have been important in achieving an almost impossible goal – that of complete eradication of slaughter of leatherback sea turtles in one of the most important breeding grounds in the world.

For more information about Nature Seekers, and how to adopt a leatherback sea turtle, visit natuseekers.org



Photo by Catherine McClellan

Dr. Scott Eckert takes measurements of a nesting leatherback.

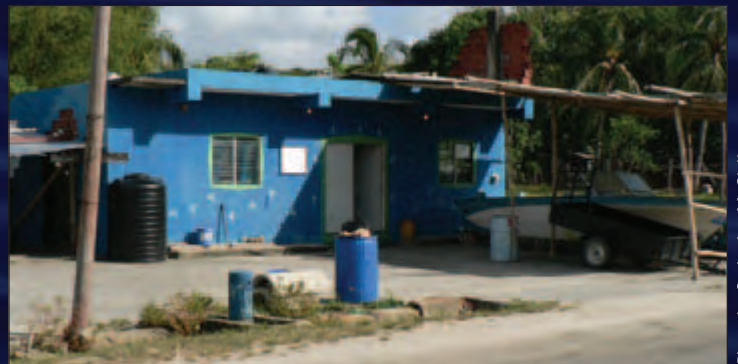


Photo by Catherine McClellan

Nature Seekers' office in Matura, Trinidad.



'It's All History Now...'

By Julie Powers, Public Relations Coordinator

A German sailor who survived the World War II sinking of the *U-352* submarine visited the Aquarium at Pine Knoll Shores last spring, as part of an Aquarium Dive Program fundraiser. "They really did a good job," Heinz Richter said, as he gazed at the recreation of the sunken sub in the *Living Shipwreck* exhibit. Richter, a mechanic aboard the *U-352* when the Coast Guard sank it in 1942, was featured at the fund-raising event.

The *U-352* had been hunting merchant ships near Cape Lookout, when its captain reportedly mistook the cutter, *Icarus*, for a freighter and attempted to torpedo it. *U-352* succumbed to answering fire. *Icarus* picked up thirty-three of the submarine's crew; thirteen others died. In 1992, crew members from both vessels commemorated the 50th anniversary in Morehead City. Richter said the Aquarium fundraiser, marking the 65th anniversary, was in the same spirit. "It's all history now," Richter said. Aquarium divers draped a wreath on the replica in honor of the war dead.

Dive program sponsor, Olympus Dive Center, organized the fund-raising event. Olympus founder George Purifoy helped

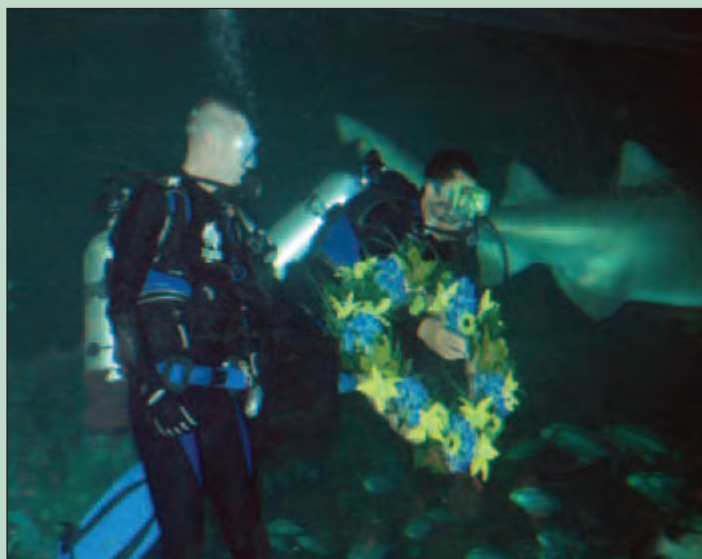


Photo by Emmett Westbrook, Foto FX

Divers place a wreath on the *U-352* replica in honor of lost crewmen.

locate *U-352* in 1974. The submarine's history and abundant marine life have made it a popular dive site. The Aquarium replicated the sub's main section at three-quarter-scale for the *Living Shipwreck* exhibit, and filled the 306,000-gallon display with a 350-pound sand tiger shark, green moray eels, a goliath grouper and hundreds of schooling fishes.

Oysters on the Net

By Joanne Harcke
Conservation and Research Coordinator

Information about the North Carolina Oyster Hatchery Program (OHP) is now easily accessible on the web by visiting ncoysters.net. The dedicated site offers background information and updates.

The Aquariums have led an interagency advisory team to develop recommendations for the construction of three hatcheries to support shellfish restoration, research and educational efforts in the state. The OHP's final report and construction-funding request went to the General Assembly last spring. Although additional funding was not approved, the proposal was well received.

Frank Harmon Architect will complete designs for proposed facilities at the Aquarium on Roanoke Island, Morris Landing in Onslow County and the University of North Carolina Wilmington Center for Marine Science.



Photo by Mike Halminski

Restoring the state's oyster populations may require raising billions of oysters in state-constructed shellfish hatcheries.

The Aquariums Division is committed to the rehabilitation of North Carolina's oyster populations and will continue to lead planning efforts for the state.

For All Seasons

Perhaps one of the best times to visit the Aquariums is in the off season, when summer crowds have thinned and life at the coast slows down a bit. Here's a sample of what's on the calendar for the coming months. Some activities require advance registration and a fee. For a detailed activity list, visit ncaquariums.com and check the interactive calendars.

Aquarium on Roanoke Island

252-473-3494 or 1-866-332-3475

"Snack with the Sharks," on designated Mondays, Wednesdays and Fridays, takes visitors behind the scenes to observe the feeding of sharks, fish and other animals in the 285,000-gallon *Graveyard of the Atlantic* exhibit. The program concludes with a discussion on sharks and a light snack for participants. For youngsters, there's "Aqua Tales for Tots," a fun session that explores aquatic animals and includes a creative craft and story.

Aquarium at Pine Knoll Shores

252-247-4003 or 1-866-294-3477

"Get Hooked" returns March 22, with fishing experts sharing tips and techniques in a day-long series of workshops. Four sessions of indoor instruction, plus raffles, giveaways and a catered lunch are included. Early registration is advised. The new program, "Green Hour," pairs preschoolers and parents in the exploration of the world around them. A scavenger hunt and other outdoor activities make for a one-on-one experience with your kidlet.

Aquarium at Fort Fisher

910-458-8259 or 1-866-301-3476

"Ft. Fisher Hermit's School of Common Sense" returns by popular demand. Watch the award-winning documentary, "The Fort Fisher Hermit: The Life & Death of Robert E. Harrill," before joining Aquarium staff for a walk through the marsh to the hermit's bunker. For little folks ages 1-3, "Mommy (or Daddy) and Me" is a chance to learn together about Aquarium animals. For a completely different experience, sign on for "Breakfast (or Dinner) with the Fishes." Enjoy a continental breakfast, or pizza dinner, followed by feeding Aquarium critters.



Photos by Wayne Justice

Sign-up Tips

The Aquariums offer a wide variety of programs and activities. All are very popular and fill quickly, especially during summer. Planning ahead is important. Here are tips to help you get in on the action any time of year.

- Visit ncaquariums.com and use the online calendars to see what activities are offered. Note activities that require advance registration. More information on each activity is available on each Aquarium's Programs and Events page.
- Contact the Aquarium to find out space availability for activities that interest you. Popular programs often fill weeks, sometimes months, in advance.
- The Aquariums can tailor specific programs for groups, providing staff and space are available. Requests are handled on a first-come basis.

- Birthday parties and the overnight program, "Sleeping With the Fishes," are offered on limited dates on a first-come basis. They fill rapidly.
- The Aquariums' Summer Day Camps fill quickly. Call the Aquarium of your choice by mid-spring, or sooner, to learn when camp registration opens.
- Arrive prepared for your activity. All outdoor activities, and some indoor programs, require closed-toe shoes. Insect repellent, sunscreen, change of dry shoes, and bottled water may be required or strongly recommended.
- Outdoor programs are weather dependent. Registered participants will not be charged if the Aquarium cancels a program due to foul weather or for other reasons.

Aquarium NEWS



Hot List

The Aquariums offer programs year-round, both indoors and out. Some require advance registration and a fee. Others are free with paid admission. For program listings and details, check the interactive calendars at ncaquariums.com. For questions, or to register for a program, call the host Aquarium.

Aquarium on Roanoke Island

Seafood Series – Join area chefs and learn new recipes and culinary tips for preparing local seafood. Participants get to sample the finished fare.

Holiday Day Camps – One-day camps for youngsters are scheduled during winter holidays, spring break, and even occasional teacher workdays. Camps can include fishing trips, marine-related crafts, behind-the-scenes tours and other aquatic-themed activities.

Holiday Egg Hunt – Plan ahead for the annual egg hunt on Easter Saturday. Youngsters learn about loggerhead sea turtles, make a sea turtle egg basket and search for holiday eggs on the Aquarium grounds.

Aquarium at Pine Knoll Shores

Succulent Seafood – Visit local restaurants, where chefs demonstrate how to prepare fresh local seafood with a flourish. Sessions in this popular, long-running program include a taste test!

Holiday Elf Camp – Open to second- and third-graders, the camp offers behind-the-scenes action, discovery labs, crafts and outdoor activities during time off from school during the winter holiday.

Summer Camp Registration – Mark your calendars for Summer Day Camp registration, beginning March 31, 2008. Camp space is limited and spaces fill quickly. Call for details and grade levels.

Aquarium at Fort Fisher

Holiday Elf Camp – Youngsters ages 7-10 can sign on for this day of activity, set for the first three Saturdays in December. Elves will be busy creating and wrapping gifts, coloring cards, and touring parts of the aquarium opened especially for them.

Nature Crafts – Create your own paintings, picture frames, wreaths or other artworks using natural materials. Among the choices are nature silhouettes, papermaking and Japanese fish-print T-shirts.

Summer Camp Registration – Mark your calendars for Summer Day Camp registration, beginning mid-March 2008. Six camp sessions are scheduled, and include a new camp for 13- and 14-year-olds. Space is limited and fills quickly.



Great hammerhead sharks are featured in Covington's acrylic-on-canvas piece titled "School."

Shark Art

By William Davis, Public Relations Assistant

Wilmington artist Fleetwood Covington, best known for his documentary-style paintings of musicians, has discovered a new muse: sharks. "I started painting sharks just for a change of pace," he said, "and I find them really fascinating."

Covington assembled a special exhibit of works, featuring sharks and underwater settings, exclusively for the *Spadefish Gallery* at the Aquarium at Fort Fisher. The exhibition opened in August, just in time to help kick off "Shark Week" at the Aquarium, and will remain on view through November.

The fourteen paintings in the collection included elasmobranchs of many kinds, including hammerheads, tigers, sand tigers, whites, and even a manta ray. Each painting seems to communicate the primitive and mysterious power we associate with these ancient animals of the oceans.

"I try to create art that people can relate to on a very basic level," said Covington.

Aquarium Reaches Milestone

By C.P. "Buster" Nunemaker III, Public Relations Coordinator



Photo by C.P. "Buster" Nunemaker III

Suited up in the Aquarium's acclimation pool, Dive Safety Officer Pat Murphy, left, and volunteer diver Lou Browning prepare to go down under.

The Volunteer Dive Program at the Aquarium on Roanoke Island reached a significant milestone at the end of summer. A record 25,000 individual dives were recorded since the Aquarium's expansion and reopening in May 2000!

More than 300 staff members, volunteers and guest divers take part in the innovative program. Dives take place not only in the Aquarium's 285,000-gallon *Graveyard of the Atlantic* exhibit and smaller exhibits, but also offshore along the Outer Banks.

Leading the way in record dives was Dive Safety Officer Pat Murphy, who completed 2,800 individual dives, followed by volunteer diver Lou Browning with 1,100 dives. Browning has worked with the dive program for more than seven years.

The purpose of the Aquarium's Volunteer Dive Program is to advance the goals of science, education and research, using the safest possible diving practices. Certified divers interested in joining the volunteer dive team should contact Volunteer Coordinator Susan Ahlfeld at 252-473-3493, ext. 254.



Searching for Ships

For Pat Murphy, dive safety officer at the Aquarium on Roanoke Island, finding the sunken remains of U.S. Coast Guard Cutter *Bedloe* had a personal significance. Murphy, retired U.S. Coast Guard Lt. Cmdr., came across the remains while diving with friends in the summer of 2004. Discovering the permanent resting place of *Bedloe* brought historical closure to the events of Sept. 14, 1944.

Coming to the aid of merchant vessel *George Ade*, which was torpedoed by U-518, *Bedloe* and her sister vessel, *Jackson*, were both lost north of Cape Hatteras in the great Atlantic hurricane of 1944. Caught in the storm's violent cross seas, *Bedloe* was knocked down and sank in less than three minutes, losing twenty-six of thirty-eight crew members. Although *Jackson* had been located as early as 1991, and dived extensively, *Bedloe* remained undiscovered for an additional thirteen years.

Today, *Bedloe* lies on her port side, nearly intact, at a depth of 150 feet some 21 miles south of Oregon Inlet, forever protected from disturbance by the Sunken Military Craft Act. Additional efforts are under way to secure management of both *Bedloe* and *Jackson* with the Monitor National Marine Sanctuary.



Photo by Tane Casserley

The U.S. Coast Guard Cutter, *Bedloe*, rests on the ocean floor, her wheelhouse encrusted with corals and sponges.

Sea Chest

Sea Fever

I must go down to the sea again, to the lonely sea and the sky,
And all I ask is a tall ship and a star to steer her by;
And the wheel's kick and the wind's song and the white sail's shaking,
And a gray mist on the sea's face, and a gray dawn breaking.

I must go down to the seas again, for the call of the running tide
Is a wild call and a clear call that may not be denied;
All I ask is a windy day with the white clouds flying,
And the flung spray and the blown spume, and the seagulls crying.

I must go down to the seas again, to the vagrant gypsy life,
To the gull's way and the whale's way, where the wind's like a whetted knife;
And all I ask is a merry yarn from a laughing fellow-rover,
And a quiet sleep and a sweet dream when the long trick's over

John Masefield



Long Way from Home

By Pat McNeese, Conservation and Research Coordinator



Photo by Pat McNeese

Harmless to humans, Australian spotted jellyfish began showing up last summer in area waters, primarily in sounds.

Australian spotted jellyfish are making waves in North Carolina. The husbandry staff at the Aquarium at Pine Knoll Shores sighted many of the beautiful but troublesome species last summer, compared to a single sighting in 2006. Like other invasives, the newcomer is thriving. Some equal the size of a basketball and weigh up to 25 pounds, several times larger than in their native waters.

The species disrupted fishing in Louisiana in 2000, when it first proliferated in the Gulf of Mexico and fouled gear and boat propellers. While not harmful to humans, the jellyfish also eats large amounts of fish larvae and eggs.

The Aquarium contacted Dr. Monty Graham of Alabama's Dauphin Island Sea Lab, who has been researching the jellies. The Aquarium is collaborating with the NC Division of Marine Fisheries (DMF) to collect tissue samples, which, hopefully, will help Graham determine the origin of these populations and the pathways of introduction.

The invaders could become exhibit material if they appear to be here to stay, according to Aquarist John Mauser. "We think they're a very interesting species," he said. "We'll see if the trend continues."



Photo by Bob Roush

Visitors get to meet and greet a new creature at the Aquarium at Fort Fisher.

New Greeter Is a Gator

By William Davis, Public Relations Assistant

Visitors can *really* get up close and personal with the newest alligator at the Aquarium at Fort Fisher. This 11-foot reptile, just inside the Conservatory entrance, ended its old life more than a year ago, and recently began a new one as an educational display.

Boaters found the alligator's remains in Brunswick County in January 2006. With permission from the NC Wildlife Commission, aquarium staff retrieved the animal and sent it to a taxidermist, who created a "skin mount" by applying the 'gator's real skin to a fiberglass replica of its body.

Visitors find the giant reptile fascinating. Few can resist touching its leathery exterior, and its gaping jaws provide a great photo opportunity. The gator is a good introduction to the live alligators in an exhibit only a few steps away.



Photo by William Davis



Pier Pleasure

By Jay Barnes, Director, Aquarium at Pine Knoll Shores



Photo courtesy of Arcadia Press' Postcard History Series: Carolina Beach by Elaine Blackmon Henson.

A postcard featured Fisherman's Steel Pier and its innovative Skyliner on the Carolina Beach boardwalk.

For decades, North Carolina's ocean piers have been coastal landmarks, popular walkways above the breakers that attract fishermen, surfers, beachgoers and vacationing families. They're architectural marvels, built to endure pounding surf and hurricanes, and provide the setting for countless fish stories, marriage proposals, sunset weddings, and romantic moonlight strolls.

North Carolina's first ocean pier was probably the Seashore Steel Pier, built on Wrightsville around 1910, but destroyed by fire a decade later. The oldest pier still in operation is Kure Beach Pier, built in 1923. By 1950, there were seven piers in the state, but then an explosion of pier construction swept the coast. Through the 1950s, a string of hurricanes destroyed many of the new structures, but most were rebuilt longer and stronger. By 1960, there were 30 piers along the coast. In 1984 the number peaked at 35, which, at the time, represented more than one-fourth of all the ocean piers from Maine to Texas.

In recent years, more hurricanes and skyrocketing property values have conspired against the state's piers and numbers have dwindled. Today, 21 remain and only 20 are fishable. This rapid demise

has alarmed community leaders and longtime fishermen. "If we lose our piers, we'll lose the opportunity for new generations to learn about fishing," pleads Al Baird, a plant manager from Fort Mill, S.C. "I think we're a lot closer to losing them than people think."

Among the recently closed landmark piers are Long Beach Pier, the Iron Steamer in Pine Knoll Shores and Sportsman's in Atlantic Beach. In Emerald Isle, an effort is under way to save Bogue Inlet Pier, including the website saveourpier.com, which features a petition with almost 12,000 signatures.

When Long Beach Pier closed in 2005, hundreds gathered on New Year's Eve to share memories, trade fish stories and take last photos of the island landmark. Signs, light fixtures and weather-beaten benches were sold to the highest bidders, mostly nostalgic fans who wanted keepsakes. Similar auctions took place when Triple S and Sportsman's piers closed in Atlantic Beach.

Among the items salvaged from Sportsman's was a large sign that greeted fisherman for more than 40 years. It delivered a profound message: *You Should Have Been Here Yesterday.*



Undercurrents



Cindy Anderson, educator at the Aquarium at Pine Knoll Shores, completed her Environmental Education Certification, offered through the NC Dept. of Environment and Natural Resources. Anderson spent more than 200 hours learning and teaching at North Carolina's state parks and other natural areas to qualify for the certification.

Linda Wooten, longtime education volunteer at the Aquarium on Roanoke Island, received the N.C. Award for Outstanding Volunteer Service. The prestigious award honors individuals and groups throughout the state for their significant contributions. "When I started volunteering at the Aquarium 14 years ago, I wanted to learn about the Outer Banks environment and what lives in the Croatan Sound behind my house," said Wooten. "I've learned a lot from all the Aquarium staff."

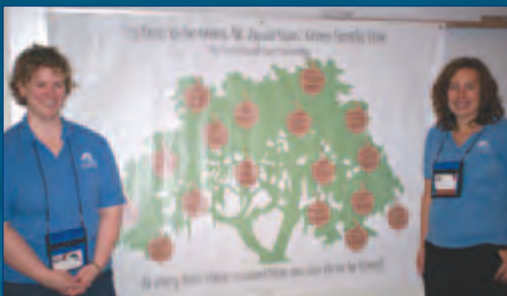
'Smart Start'

Education Coordinator Peggy Sloan appears with a cast of preschoolers in 'Smart Start Kids,' a TV program shot last summer at the Aquarium at Fort Fisher. With Sloan's help, youngsters talk to real SCUBA diver and Dive Safety Officer Bill Parker, then learn how to feed a horseshoe crab at the touch pool. The episode will air several times on weekend mornings in Raleigh, Charlotte and Wilmington, and on UNC-TV stations statewide through 2009. The show is a production of WRAL, in cooperation with the North Carolina Partnership for Children. Program information at smartstartkidstv.com.



Photo by Jacob Rudolph

Aquariums Go Green



Dia Hitt

Ruth Schneider

Aquarium Educators Dia Hitt, of Roanoke Island, and Ruth Schneider, of Fort Fisher, presented a poster highlighting the Aquariums' "green" activities at the 2007 National Marine Educators Conference in Portland, Maine. Designed to resemble a live oak tree, the poster describes conservation projects at all three Aquariums, as well as the resources needed and the outcome

and benefits of the projects. Green projects include small everyday actions, such as changing light bulbs, to statewide initiatives, such as the Oyster Hatchery Program and "Local Catch: N.C. Seafood Availability" wallet cards. Together, green efforts help achieve the state's goal of conserving natural resources.

Reader's Choice Award

Crystal Coast Coaster Magazine named the Aquarium at Pine Knoll Shores as "Favorite Area Attraction" in its 2007 Reader's Choice Awards. Readers from all over the world voted in the magazine's annual poll.

Volunteer Display

In honor of its priceless partners, the Aquarium at Fort Fisher installed a volunteer recognition wall last summer. The display promotes the benefits of volunteerism and lists winners of the Aquarium's Volunteer of the Year awards. The wall's photographs depict the many departments and duties that rely on the talents and energy of this special staff.



Educator Jennifer Collier (left) and Volunteer Christina Wiegand

Photo by William Davis

Greener DENR Award

The Security Team at the Aquarium at Pine Knoll Shores received the "Greener DENR" award for efforts to reduce vehicle emissions. The Dept. of Environment and Natural Resources (DENR) recognized the Aquarium's program to promote carpooling, biking or walking to work last summer. Coming in first in the competitive program was Aquarist Kevin Mathis, who won a much-coveted IPOD. Prizes for the program were provided by the Aquarium Society.

Local Catch: Seafood Availability Cards

The NC Aquariums partnered with NC Sea Grant to develop handy, wallet-sized cards that provide consumers with information on the benefits of choosing local seafood. The cards highlight seasonal species availability in markets and restaurants. Additional information on fishing methods, tips for purchasing, and sustainability is included.





Join the NORTH CAROLINA AQUARIUM Family!



Photo by Sandy Smith

Membership Application

Your membership provides crucial operational support to the North Carolina Aquariums. All three Aquariums have now completed exciting expansions with the additions of new exhibits, huge ocean tanks, and indoor habitats for aquatic wildlife ranging from otters to alligators. More than **ONE MILLION VISITORS** will enjoy the unique educational experiences offered by the Aquariums this year.

It doesn't hurt that Aquarium membership is also the best deal around. Families can enjoy **UNLIMITED FREE ADMISSION** at the Aquariums, as well as at the NC Zoo for just \$50 a year! What's more, our Aquarium members receive free admission at more than one hundred other zoos and aquariums all around the country.

Members also receive a free subscription to the award-winning *Aquarium News* magazine, as well as 10% discounts on Aquarium gift shop purchases and educational programs. Add in complimentary guest passes to share with friends, and an exclusive MEMBER tote bag for Donor level and above, and it's clear that membership definitely has its advantages.

I. Choose a Member Category

- ☐ **Individual** (Benefits for one person) _____ \$30
- ☐ **Family** (Benefits for two adults and their children or grandchildren under age 18) _____ \$50
- ☐ **Donor** (Benefits with 4 guest passes and **exclusive MEMBER tote bag**) _____ \$100
- ☐ **Patron** (Donor benefits with 6 guest passes and 10% discount on Aquarium rentals) _____ \$300
- ☐ **Director** (Donor benefits with 8 guest passes and 10% discount on Aquarium rentals) _____ \$500
- ☐ **Benefactor** (Donor benefits with 10 guest passes and 10% discount on Aquarium rentals) _____ \$1,000

II. Member Information

Name of 1st Adult

Name of 2nd Adult

Address: _____

City: _____ State: _____ Zip: _____

Phone: () _____

Email Address: _____

☐ Please check here if you wish to receive Aquarium updates by Email

Number of children or grandchildren under age 18: _____

I / We primarily visit the Aquarium at:

☐ Roanoke Island ☐ Pine Knoll Shores ☐ Fort Fisher

III. Payment Information

Total Payment: _____ \$

Method: ☐ Check ☐ Visa ☐ Mastercard

(Please make checks payable to NC Aquarium Society)

Card Number: _____

Exp. Date: _____

Signature: _____

Thank you for your support of the North Carolina Aquariums!

This application can be turned in at the Aquariums when you visit or mailed to the NC Aquarium Society, 417 N. Blount St., Raleigh, NC 27601.





Scorpionfish are nocturnal ambush predators. As bottom dwellers, they sit motionless in rocky areas and await passing prey. Venomous spines on their back and fins make them unappealing appetizers for larger fishes. Photo by Cyndar Meissner



North Carolina Aquarium Division
3125 Poplarwood Ct., Suite 160
Raleigh, NC 27604

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